

REMARKS

The resin composition of this invention comprises a polyamide and a phosphazene compatibility enhancing resin, consisting essentially of a polyphenylene ether-based resin, a polystyrene-based resin or a mixture thereof. The invention provides a flame retardant resin composition which has excellent flame retardant properties, mechanical properties, and heat resistance.

Claims 1-9 have been rejected under 102(b) as being anticipated by Nakacho et al (EP 0945478). Claims 1-13 have also been rejected as obvious under 35 U.S.C 103(b) as unpatentable over Nakacho et al. in view of Ida et al. (USP 6337031), or An et al (USP 5028347).

Nakacho discloses a list of 31 resins, and then goes on to state that "[I]n the present invention, the thermoplastic resins may be used singly or in combination." (Nakacho, paragraph 77.) The examiner states that the list of resins is not very long, and that it would be obvious to choose the combination instantly claimed.

However, the presently claimed invention is directed to combinations of two or three specific resins, which combinations provide unique anti-inflammatory compositions. While the number of listed resins is 31, the number of possible combinations of those 31 resins is very, very large, and the probability of one skilled in the art finding the particularly claimed combinations is very, very small, especially considering the lack of any substantial direction from the prior art.

In Nakacho there is no teaching or suggestion that the combination of resins should be any particular number of resins. Therefore, there is no reason to limit the disclosure in Nakacho to a combination of a particular number of resins. The suggestion that the resins listed could be used "in combination" thus encompassed all possible combinations of the 31 resins disclosed by Nakacho, such as a three resin combination, a four resin combination, up to a 31 resin combination. The extremely large number of combinations that is disclosed by Nakacho is illustrated below.

| <u>Combination</u> | <u>Number of possible combinations</u> |
|----------------------------|--|
| Two resin combination | 465 |
| Three resin combination | 4495 |
| Four resin combination | 35,960 |
| Five resin combination | 169,911 |
| Six resin combination | 736,281 |
| Seven resin combination | 2,629,575 |
| Eight resin combination | 7,888,725 |
| Nine resin combination | 20,160,075 |
| Ten resin combination | 44,352,165 |
| Eleven resin combination | 84,672,315 |
| Twelve resin combination | 141,120,525 |
| Thirteen resin combination | 206,253,075 |
| Fourteen resin combination | 265,182,525 |
| Fifteen resin combination | 300,540,195 |
| Sixteen resin combination | 300,540,195 |

| | |
|--------------------------------|---------------|
| Seventeen resin combination | 300,540,195 |
| Eighteen resin combination | 265,182,525 |
| Nineteen resin combination | 206,253,075 |
| Twenty resin combination | 141,120,525 |
| Twenty one resin combination | 84,672,315 |
| Twenty two resin combination | 44,352,165 |
| Twenty three resin combination | 20,160,075 |
| Twenty four resin combination | 7,888,725 |
| Twenty five resin combination | 2,629,575 |
| Twenty six resin combination | 736,281 |
| Twenty seven resin combination | 169,911 |
| Twenty eight resin combination | 35,960 |
| Twenty nine resin combination | 4495 |
| Thirty resin combination | 465 |
| Total possible combinations | 2,448,032,769 |

Thus, the total number of combinations that are included within the genus disclosed in Nakacho is over 2 million. The Probability of picking two of the claimed resins out of over 2 million possible combinations is $1/2,000,000 = 0.0000005$

In fact, although there is nothing in Nakacho which would limit the number of resins to two, even if Nakacho were so limited, the number of possible combinations of two resins selected from a list of 31 is still 465. The probability of finding the claimed combination of thermoplastic polyamide resin and polyphenylene-ether-based resin out of 465 possibilities is only about 0.002 (0.2%), which does not even qualify as a basis for an obviousness rejection, let alone anticipation. The probability of finding the other claimed combination (polyamide resin

and combination of polyphenylene-ether-based resin and a polystyrene based resin) is even smaller.

Because of the very large number of possible resin combinations, and because the particular combination claimed in the instant application provides substantial additional benefits, and solves problems not contemplated by Nakacho, it is submitted that the particular choice of the instant combination is not disclosed to one of the ordinary skill in the art.

The Examiner's statement that the presently claimed combination would be obvious can be made only after having knowledge of this invention. Indeed, in Nakacho, there is no suggestion of combining any two particular resins, let alone the ones claimed here. In Nakacho there is also no discussion of the problem of bleed-out of the phosphazene compound in the polyamide-phosphazene composition. There is also nothing in Nakacho that suggests that by blending a polyphenylene ether-based resin, a polystyrene-based resin or a mixture thereof into the polyamide-phosphazene compound composition, the obtained resin composition would be free from problems such as corrosion of molding machines due to flame retarder, bleed-out thereof and mold deposits, and would have excellent flame retardance, mechanical properties, and heat resistance. In fact, in none of the references cited by the examiner gives any guidance for solving the problems mentioned above, or for obtaining the technical advantages obtained from the presently claimed combination.

The courts have long disapproved of applying hindsight to reject specific species that are encompassed within a large genus in a prior art reference. There must be some guidance for the

selection of the particular combination claimed when that combination provides additional advantages or solves particular problems known in the art.

In the case of *In re Ruschig*, an applicant presented a specific compound that was within a broad generic disclosure that encompassed many, many, compounds, but that was not specifically named or mentioned in the disclosure. *In re Ruschig*, 154 USPQ 118 (CCPA 1967). It was argued there, as here, that the broad generic disclosure was an anticipatory disclosure. However, the court disagreed, stating:

Working backward from a knowledge of chlorpropamide, that is by hindsight, it is all very clear what route one would travel through the forest of the specification to arrive at it. But looking at the problem, as we must, from the standpoint of one with no foreknowledge of the specific compound, it is our considered opinion that the board was correct in saying:

Not having been specifically named or mentioned in any manner, one is left to selection from the myriads of possibilities encompassed by the broad disclosure, with no guide indicating or directing that this particular selection should be made rather than any of the many others which could also be made.

Id. at 123. In the *Ruschig* case, as here, there was no guidance given towards the selection of the particular later claimed combination. *Ruschig* states that when a particular combination provides additional advantages, or unexpectedly solves problems known in the art, it is improper to reject those claims unless some guidance can be found in the reference towards the selection of that particular combination. There is no such guidance in *Nakacho*, or in the other prior art of record.

Even if *Nakacho*'s disclosure were somehow limited to a teaching of combinations of only three of the 31 listed materials, including a polystyrene based resin, the chance of one

skilled in the art picking a claimed combination from the 31 materials listed by Nakacho would have been only 1 in 642, or a probability of only about 0.002. Such a remote possibility, especially in the absence of any guidance by Nakacho concerning the choices to be made, or concerning the problems which are to be resolved by such choices, is strong evidence of **non-obviousness**, rather than evidence of anticipation or obviousness.

In any event, this is an extremely large number of combinations and Nakacho does not even begin to suggest the selection of the particular combination here claimed. Nakacho also does not suggest any resin combination as a solution to the problem of bleedout, or as one that would be free of problems such as corrosion of molding machines due to flame retarder, bleedout thereof, and mold deposits, all while maintaining excellent flame retardance, mechanical properties, and heat resistance.

Claims 1-13 have also been rejected as obvious under 35 U.S.C 103(b), as unpatentable over Nakacho et al. in view of Ida et al. (USP 6337031), or An et al (USP 5028347). The examiner states that "the secondary references Ida and An are relied upon only for their teachings of magnetic powder useful as an ingredient in a flame retardant composition."

It is here submitted that since the claimed combination of resins is patentable as discussed above, then the claimed combination of resins with a magnetic powder additive is also patentable.

In view of the amendment and discussion above, it is respectfully submitted that the present application is in condition for allowance. A reconsideration and notice of allowance are earnestly solicited.

Applicants believe that additional fees are not required for consideration of this Amendment. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No.: 04-1105.

Respectfully submitted,

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